



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, DC 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,340	12/31/2001	George G. Barclay	50727-3C	1545

21874 7590 03/26/2003

EDWARDS & ANGELL, LLP
P.O. BOX 9169
BOSTON, MA 02209

EXAMINER

HAMILTON, CYNTHIA

ART UNIT	PAPER NUMBER
----------	--------------

1752

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/039,340

Applicant(s)

BARCLAY ET AL.

Examiner

Cynthia Hamilton

Art Unit

1752

-- **The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,8,13,23-27,35 and 41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8,13,23-27,35 and 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-5, 8, 13, 23-27, 35 and 41 are present for examination. All other claims have been cancelled.

2. The examiner notes for the record that applicants in their Preliminary Amendment filed December 31, 2001 remark that PCT/US01/14914 and U.S. application No 09/567,634 are incorporated herein by reference. No such amendment is found making such incorporation. An incorporation-by-reference statement added after the filing date of an application is not permitted because no new matter can be added to an application after its filing date. See 35 U.S.C. § 132(a). If an incorporation-by-reference statement is included in an amendment to the specification to add a benefit claim after the filing date of the application, the amendment would not be proper. When a benefit claim is submitted after the filing of an application, the reference to the prior application cannot include an incorporation-by-reference statement of the prior application. See Dart Industries v. Banner, 636 F.2d 684, 207 USPQ 273 (C.A.D.C. 1980). Therefore, the Office will not grant a petition to accept a benefit claim that includes an incorporation-by-reference statement of a prior application, unless the incorporation-by-reference statement was submitted on filing of the application.

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. *See In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. *See* 37 CFR 1.130(b).

Art Unit: 1752

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 3-5, 8 and 23-24 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 33-35, 38, 43-45 of U.S. Patent No. 6,306,554 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patent claims are species of the instant claims. Applicant's claims 1 and 3 are broader than patent claim 1, applicant's claim 4 is broader than patent claim 34, applicant's claim 5 is broader than patent claim 35, applicants claim 8 is broader than patent claim 38, applicant's claim 23 is broader than patent claims 43-44 and applicant's claim 24 is broader than patent claim 45. If the application claim is broader than the patent claim then the application claim is anticipated by the patent claim. See particularly *In re Goodman* cited above.

5. Claim 25 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 43 and all claims dependent thereon of copending Application No. 09/927,040. Although the conflicting claims are not identical, they are not patentably distinct from each other because if the instant claim is broader than the copending application claim then the instant claim is anticipated by the application claim. See particularly *In re Goodman* cited above. The composition of instant claim 25 is broader than the composition of 09/927,040 claim 43 and all application claims dependent thereon.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Art Unit: 1752

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-2, 4-5, 8, 13, 23-24 and 35 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Jung et al (GB 2320718A). Jung et al in Example VII and VIII and in composition attributed to AT and T (or Bell Laboratory) on pages 2-3 present compositions which anticipate the instant composition where in Jung et al the fused heteroalicyclic group is a cyclic anhydride with an oxygen in the ring or the carbonate of Formula IV in claim 1 of Jung et al. The t-butyl group is the photoacid labile moiety. There are no aromatic rings present and there are tetra polymers described. The process of imaging with these compositions is set forth in Example VIII and page 6 of Jung et al which anticipates the method of instant claim 35 and the coated wafer of instant claim 41. Wherein the heterocyclic group in Jung et al claims is cyclocarbonates, and tert butyl groups are present, the compositions of instant claim 13 are anticipated.

8. Claims 1-2, 4-5, 8, 24 and 35 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Yool et al (EP 0 836 119 A1). The copolymers and terpolymers and their chemically amplified compositions of Yool et al as disclosed in the Abstract, Examples and the process on page 11 in Example 4 anticipate the instant compositions, methods and coated

Art Unit: 1752

substrates wherein the wafer is a microelectronic substrate. The cyclic anhydride is the fused heterocyclic structure with oxygen being the non-carbon atom present in the ring.

9. Claims 1-2, 4-5, 23-24 and 35 are rejected under 35 U.S.C. 102(e or a) as being anticipated by Seo et al (US 6,146,810 as (e) or EP 0 989 462 A1 as (b)). The chemical amplification polymer compositions and methods of imaging of Seo et al anticipate the instant compositions and methods of instant claims 1-2, 4-5, 23-24 and 35 wherein cyclic anhydride is the fused heterocyclic unit. In Seo et al, see particularly the Examples, polymer formulas and claims. In the US document, see Detailed description of the Invention and Polymer and formulas in col. 4 as well.

10. Claims 1-2, 4-5, 23-24, 35 and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Jung et al (6,150,069). The compositions, articles of manufacture and methods of forming relief images of Jung et al anticipate the instant compositions, articles and methods of claims 1-2, 4-5, 23-24, 35 and 41 wherein oxygen is the heteroatom in the fused ring. In Jung et al, see col. 2, lines 6-61, col. 3, lines 1- col. 6, lines 37, and Examples.

11. Claims 1-2, 4-5, 24, 35 and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Sumino et al (US 6,143,472). The compositions wherein the third, fourth and sixth terpolymer found in col. 23 of Sumino et al are used in the methods set forth in col. 28, lines 40-62 and col. 27 and the Examples. The heterocyclic ring is a cyclic anhydride.

12. Claims 1-2, 4-5, 8, 23-24, 35 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Houlihan et al (5,843,624). The compositions, articles of manufacture and methods of imaging of Houlihan et al as set forth in Abstract, Figures and Examples, especially

Art Unit: 1752

Examples 7 and 9 anticipate the invention of instant claims 1-2, 4-5, 8, 23-24, 35 and 41 wherein the heterocyclic ring member chosen is O.

13. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

14. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claim limitation at issue is "not an anhydride or lactone" as a limit to the heteroalicyclic group fused to the polymer backbone. Applicant has not pointed out where the new claim limit is supported, nor does there appear to be a written description of the claim limitation in question in the application as filed. Each working example set forth in the application has a fused anhydride ring present. While other rings are given, there is no genus set forth wherein only lactone and anhydride are excluded as choices. Each case must be decided on its own facts in terms of what is reasonably communicated to those skilled in the art. In re Wilder, 736 F.2d 1516, 1520, 222 USPQ 369, 372 (Fed. Cir. 1984). Applicants have not pointed out where the genus claimed is set forth.

15. Claims 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Schwalm et al (5,130,392). Examples 3 and 4 of Schwalm et al disclose compositions and polymers which anticipate the instant polymers and compositions. The vinylbenzylsulfonium salt (II b) is the monomer polymerized to form a heteroalicyclic group that contains one or more sulfur ring

Art Unit: 1752

members. In Schwalm et al, see particularly col. 6, last structure, col. 9, lines 54-63, col. 10, lines 44-46, and claim 8. The sulfonium salt is also the instant photoactive compound. The acid cleavable unit in Example 3 is made from 4-t-butoxycarbonyloxystyrene and in Example 3 is made from p-trimethylsilyloxystyrene.

16. Claims 25-27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Schwalm et al (5,130,392). Schwalm et al teach forming copolymers with sulfonium groups like that of IIB in col. 6 and Examples 3-4 as one example of six given as the onium monomer and with one acid cleavable monomer unit of which three (Ii, Ih, and Ii) are acrylate monomers. With respect to instant claims 25-27, the formation of any polymer from any one of the six sulfonium groups and any of the twelve examples of acid labile groups in Schwalm et al would have been immediately envisionable by workers of ordinary skill in the art or, in the alternative, obvious because the alternatives were given by Schwalm et al. The selection of any one of either group to obtain radiation sensitive polymer for use in a positive or negative working recording element formed on a silicon wafer, i.e. a microelectronic wafer substrate. In Schwalm et al, see particularly col. 6, last structure, col. 9, lines 54-63, col. 10, lines 44-46, and claim 8 as well as col. 3, lines 1-2, col. 4, line 21 (tetrahydrothiophene ring for R₃ and R₄), col. 9, lines 12-18, 38-63, col. 10, lines 4-20. The sulfonium salt is also the instant photoactive compound.

17. Claims 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Schwalm (5,453,341). The elements, photoresists and polymers of Schwalm wherein The section structure under (II) between col. 3 -4 is chosen as the sulfonium salt photoinitiator with any of (III) acid degradable groups anticipates the instant invention of claims 25-26. In the abstract of Schwalm

Art Unit: 1752

the compositions are used to form semiconductor structural elements thus are clearly taught to be coated thereon to produce such.

18. Claim 25 is rejected under 35 U.S.C. 102(b) as being anticipated by Binder et al (5,759,750). In Binder et al, see the Abstract. Binder et al anticipates the instant invention of claim 22 wherein X is S or SO₂.

19. Claim 25 is rejected under 35 U.S.C. 102(e) as being anticipated by Willson et al (6,103,445). In col. 6, lines 8-68, of Willson et al wherein the chosen acid cleavable group is the sixth structure, their compositions and polymers anticipate the polymers and compositions of instant claim 25 wherein norbornene is required present and a photo acid generator is required present.

20. Claims 25-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al (6,197,476 B1). The cyclic dione polymer and composition of Chang et al as disclosed in col. 6, lines 34 to col. 7, lines 23 wherein C is selected to be sulfur anticipate the instant compositions and polymers of instant claims 25-26.

21. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al (6,280,898 B1). Hasegawa et al teach all of the instant invention of claims 25-27, but the exemplification of combining the sulfur ring monomers of general formula (1) with acid degradable monomers and optionally third monomers. However, Hasegawa et al to teach as one exemplification of formula 1 either sulfur heterocycle last structures in col. 7 and formula 1 monomers polymerized with units that have acid degradable units, i.e. those in col. 3 with R¹⁷ present. The combination of other monomers with these is taught in the Synthesis examples wherein formula 1 monomers are polymerized with acid degradable monomers carbon alicyclic

Art Unit: 1752

monomers and anhydride monomers. Thus, with respect to instant claims 25-27, the combining of acid degradable groups with the formula 1 monomers comprised of sulfur heterocyclic rings would have been prima facie obvious to form polymers for chemically amplified resists wherein photoacid generators are present to form a resist with high sensitivity, resolution and etching resistance as directed by Hasegawa et al in col. 14, lines 48-col. 16, line 68. In Hasegawa et al see particularly Abstract, col. 1, Summary of the Invention, col. 3-4.

22. Claims 25 and 27 are rejected under 35 U.S.C. 102(a) as being anticipated by Taylor et al (EP 0915382). The Scheme II on page 5 of Taylor et al discloses a photoresist composition that anticipates the instant composition and polymer of applicant's claims 25 and 27. Claims 1 and 3 of Taylor et al further disclose this without specificity of the sulfur atom being present.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Cynthia Hamilton whose telephone number is (703) 308-3626. The examiner can normally be reached on Monday-Friday, 9:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on (703) 308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of papers not received regarding this communication or earlier communications, or of a general nature or relating to the status of this application or proceeding should be directed should be directed to the Customer Service Center of Technology Center 1700 whose telephone number is (703) 306-5665.

Cynthia Hamilton
March 18, 2003



CYNTHIA HAMILTON
PRIMARY EXAMINER